Lab 4b - Using 32 bit timers

Saturday, March 28, 2020 4:30 PM

Timer interval required - 10 Sec
With a pre-scale of 256, we must count 390625 clock pulses, we need a 32 bit timer

Configuring two timers - Timer 2,3 using interrupts and timer 1 for delay without an interrupt

```
tcfg = T2_ON|T2_SOURCE_INT|T2_PS_1_256;
OpenTimer23(tcfg, T23_TICK);

/* Now enable system-wide multi-vector interrrupt handling       */
INTEnableSystemMultiVectoredInt();

/* configure timer 2 interrupt with priority of 2  */
ConfigIntTimer23(T23_INT_ON | T23_INT_PRIOR_2);

/* Clear interrupt flag    */
mT3ClearIntFlag();

/* Configure Timer 1. This sets it up to count a 10Mhz input */
/* The timer will be polled to measure elapsed time.                */
tcfg = T1_ON|T1_IDLE_CON|T1_SOURCE_INT|T1_PS_1_1|T1_GATE_OFF|T1_SYNC_EXT_OFF;
OpenTimer1(tcfg, 0xFFFF);
```

The interrupt Service Routine

int direction = 0;			// global variable for signaling the main program

```
void __ISR(_TIMER_23_VECTOR, ipl2) Timer23Handler(void)
{
        direction = !direction;                                         // signal to main to process update
        mT3ClearIntFlag();                                                      // clear the interrupt flag
}
```